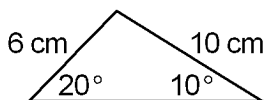


Name: _____

- 1) Solve for *all* values of $2 \sin \theta + \sqrt{3} = 0$ when $0^\circ \leq \theta \leq 360^\circ$.
 A) $60^\circ, 300^\circ$ B) $60^\circ, 120^\circ$ C) $150^\circ, 210^\circ$ D) $240^\circ, 300^\circ$
- 2) What is the solution to $\sqrt{3} \tan x + 1 = 0$ when $0^\circ \leq x \leq 180^\circ$?
 A) 150° B) 30° C) -30° D) 60°
- 3) What is the solution to $7 \cos \theta - 5 = 0$ when $0^\circ \leq \theta \leq 90^\circ$? [Round to the nearest tenth of a degree.]
 A) 46.5° B) 45.6° C) 44.4° D) no solution
- 4) The expression $\log a + \frac{1}{2} \log b$ is equivalent to
 A) $(\log a)(\frac{1}{2} \log b)$ B) $\log(a + \sqrt{b})$ C) $\log \sqrt{ab}$ D) $\log a\sqrt{b}$
- 5) If y varies directly as x , and $x = 4$ when $y = 9$, what is x when $y = 144$?
 A) 64 B) 32 C) 36 D) 324
- 6) If x is a positive acute angle, solve $3 \sin x - 1 = 1$ to the nearest degree.
- 7) Simplify: $\frac{k^2 - 25}{6k + 30}$
- 8) Given $2 \tan x + 2 = 0$, solve for x , to the nearest degree, in the interval $0 \leq x \leq 360$.
- 9) What are *all* values of θ in the interval $0^\circ < \theta < 180^\circ$ that satisfy the equation $3 \tan^2 \theta - 1 = 0$?
 A) $72^\circ, 150^\circ$ B) $30^\circ, 108^\circ$ C) $30^\circ, 150^\circ$ D) $72^\circ, 108^\circ$
- 10) The expression $\frac{\cot \theta}{\csc \theta}$ is equivalent to
 A) $\frac{\cos \theta}{\sin^2 \theta}$ B) $\cos \theta$ C) $\tan \theta$ D) $\sin \theta$
- 11) Which expression is equivalent to $\sin 22^\circ \cos 18^\circ + \cos 22^\circ \sin 18^\circ$?
 A) $\sin 40^\circ$ B) $\cos 4^\circ$ C) $\cos 40^\circ$ D) $\sin 4^\circ$
- 12) What is the exact value of $\cos 105^\circ$?
- 13) The expression $1 - 2 \sin^2 30^\circ$ has the same value as
 A) $\sin 60^\circ$ B) $\cos 60^\circ$ C) $\cos 15^\circ$ D) $\sin 15^\circ$
- 14) What is the exact value of $\frac{2 \tan 15^\circ}{1 - \tan^2 15^\circ}$?
- 15) If $\sin A = \frac{\sqrt{11}}{7}$, find the value of $\cos 2A$.

- 16) If A is a positive acute angle and $\sin A = \frac{3}{5}$, find the value of $\sin \frac{A}{2}$.
- 17) In $\triangle ABC$, $a = 8$, $b = 5$, and $c = 9$. What is the value of $\cos A$?
- A) $\frac{7}{15}$ B) $-\frac{1}{4}$ C) $-\frac{7}{15}$ D) $\frac{1}{4}$
- 18) Solve for the variable: $|4 - 2y| = 10$
- 19) What is the value of $\sum_{m=2}^5 (m^2 - 1)$?
- A) 54 B) 58 C) 50 D) 53
- 20) The roots of the equation $x^2 + 6x + 11 = 0$ are
- A) real, rational, and equal C) real, rational, and unequal
B) imaginary D) real, irrational, and unequal
- 21) In a triangle, the sides measure 6, 7, and 9. What is the cosine of the *largest* angle?
- A) $-\frac{1}{81}$ B) $\frac{4}{84}$ C) 81 D) $-\frac{4}{84}$
- 22) In $\triangle ABC$, $a = 3$, $b = 5$, and $m\angle C = 120^\circ$. Find the value of c .
- 23) In $\triangle ABC$, if $a = 4$, $b = 6$, and $\sin A = \frac{3}{5}$, then $\sin B$ equals
- A) $\frac{3}{20}$ B) $\frac{8}{10}$ C) $\frac{9}{10}$ D) $\frac{6}{10}$
- 24) In $\triangle ABC$, $m\angle A = 38^\circ$, $a = 11$, $b = 15$, and $\angle B$ is an obtuse angle. Find the measure of acute $\angle C$ to the nearest degree.
- 25) In $\triangle ABC$, what are all possible values (to the nearest whole number) for $\angle A$ if $m\angle B = 48^\circ$, $b = 9$, and $c = 11$?
- A) 67° , only B) 115° , only C) 65° and 115° D) 67° and 17°
- 26) If $a = 5$, $b = 7$, and $\angle A = 30^\circ$, how many distinct triangles can be constructed?
- A) 1 B) 2 C) 3 D) 0
- 27) How many different triangles can be constructed, given the parts $m\angle A = 54^\circ$, $a = 30$, and $b = 35$?
- 28) In $\triangle ABC$, $a = 8$, $b = 9$, and $m\angle C = 135^\circ$. What is the area of $\triangle ABC$?
- A) $18\sqrt{2}$ B) 18 C) 36 D) $36\sqrt{2}$
- 29) To the nearest tenth of a square centimeter, what is the area of the triangle below?



- A) 30.0 cm^2 B) 7.5 cm^2 C) 15.0 cm^2 D) 120.0 cm^2

- 30) In $\triangle ABC$, $m\angle C = 30^\circ$ and $a = 24$. If the area of the triangle is 42 units², what is the length of side b ? [Express answer in simplest radical form if necessary.]
- 31) In $\square PQRS$, $PS = 24$, $PQ = 28$, and $m\angle P = 45^\circ$. Find the area of $\square PQRS$. [Express answer in simplest radical form if necessary.]
- 32) Two forces, F_1 and F_2 , with magnitude of 30 and 35 pounds respectively, have a resultant with the magnitude of 42 pounds. Find, to the nearest degree, the measure of the angle between the two forces.
- 33) Two forces, F_1 and F_2 , have magnitude of 335 and 478 pounds respectively, and act on a body at an angle of $45^\circ 40'$ with each other. Find, to the nearest ten minutes, the angle between the resultant and the greater force.
- 34) If $g(x) = x + 3$ and $f(x) = x^2 - 2$, find the value of $f(g(a))$.
- 35) The expression $\frac{\sin^2 \theta + \cos^2 \theta}{\sin \theta}$ is equivalent to
- A) $\sin \theta \cot \theta$ B) $\sin \theta \cos \theta \cot \theta$ C) $\sec \theta$ D) $\csc \theta$